

EFFECTS OF CULTIVATIONS AND HEIGHTS AND DIRECTIONS OF STAKING ON YIELD AND GENERAL PERFORMANCE OF EIGHT YAM CULTIVARS

B.N. Okigbo*

SUMMARY

At Nsukka in East Central State of Nigeria in 1971 and 1972 heights and orientation of rows of stakes and ridging or flat land were compared using eight cultivars within six species of yams (*D. alata*, *D. rotundata* (cv. Abi), *D. rotundata* (cv. Aga), *D. rotundata* (cv. Ji-igwe), *D. dumetorum*, *D. esculenta*, *D. cayenensis* and *D. bulbifera*). Highly significant fresh weight yield differences were observed between cultivars and between staking treatments. Staking effects on yield were mainly due to differences in height rather than orientation of the rows of stakes. Tuber yields decreased with decreasing height of stakes. In both years the order of yield among cultivars was *D. rotundata* (Ji-igwe) > *D. rotundata* (Aga) > *D. rotundata* (Abi) > *D. alata* \approx *D. cayenensis* > *D. dumetorum* > *D. bulbifera*.

RESUME

En 1971 et 1972 à Nsukka, dans l'Etat du Centre-Est du Nigéria, la hauteur et la direction des lignes de treillis, le semis en buttes ou sur terrain plat ont été comparés en utilisant huit cultivars tirés de 6 espèces d'igname (*D. alata*, *D. rotundata* (var. Abi), *D. rotundata* (var. Aga), *D. rotundata* (var. Ji-igwe), *D. dumetorum*, *D. esculenta*, *D. cayenensis* et *D. bulbifera*). Des écarts très importants de poids frais de rendement ont été observés entre les cultivars et les méthodes de tuteurage. L'effet du tuteurage était surtout dû aux différences de niveau plutôt qu'à la direction des lignes de treillis. Plus les treillis sont courts, plus le rendement est bas. Sur les deux années, l'ordre du rendement des cultivars était *D. rotundata* (Ji-igwe) > *D. rotundata* (Aga) > *D. rotundata* (Abi) > *D. alata* > *D. cayenensis* > *D. dumetorum* > *D. bulbifera*.

RESUMEN

En 1971 y 1972 se compararon en Nsukka, en al Estado Este Central de Nigeria, alturas y orientación del estacado así como terreno en plano y alomado. Se usaron ocho cultivares con seis especies de ñame (*D. rotundata* (var. Ji-igwe), *D. alata*, *D. rotundata* (var. Abi), *D. rotundata* (var. Aga), *D. dumetorum*, *D. esculenta*, *D. cayenensis* y *D. bulbifera*). Se observaron diferencias altamente significativas en rendimiento de peso fresco, entre cultivares y entre tratamientos de estacado. El efecto del estacado sobre el rendimiento se debió principalmente a diferencias en altura, más que a la orientación de las hileras. El rendimiento de tubérculos decreció con la altura del estacado. En ambos años el orden que siguió el rendimiento por cultivares fué: *D. rotundata* (Ji-igwe) > *D. rotundata* (Aga) > *D. rotundata* (Abi) > *D. alata* > *D. cayenensis* > *D. dumetorum* > *D. bulbifera*.

INTRODUCTION

Types of support of wild and cultivated yams

Wild yams are climbers depending on forest trees and shrubs for support and to expose their leaves to sunlight. Staking practices for cultivated yams were reviewed by Coursey². Stakes vary in height from less than 1 to over seven metres. Sometimes, in drier areas when small setts are planted, yam vines are unstaked. Height and thickness of stakes are often selected depending on the size of setts since larger setts tend to produce stouter vines. Where stakes are scarce, as in the savannah areas of the Northern States of Nigeria, yam vines are either unstaked or allowed to grow on the dry stems of maize, sorghum or pearl millet. Yam vines are also grown up castor beans, pigeon pea or cotton plants. In compound farms of the humid southern areas of Nigeria, yams are supported on tall bamboo poles, palm petioles or various living plants such as *Newbouldia leavis*, *Ficus* spp. etc. or on heavily pruned oil palms or other trees. Yams may be supported by a single stake but very often stout and tall yam vines are first trained on smaller stakes which are in turn tied to stronger and taller stakes. Single stakes may be tied together in twos, threes or fours for greater stability. Stakes may be branched or unbranched. Trellises of wood, bamboo, chicken wire netting, wire net fence or just ordinary wire slung across two or more poles^{2,8} may also be used in place of stakes.

*University of Nigeria, Nsukka. Present address: IITA, PMB 5320, Ibadan, Nigeria.